

STANDARD TREATMENT WORKFLOW (STW)

TIBIAL PLATEAU FRACTURES

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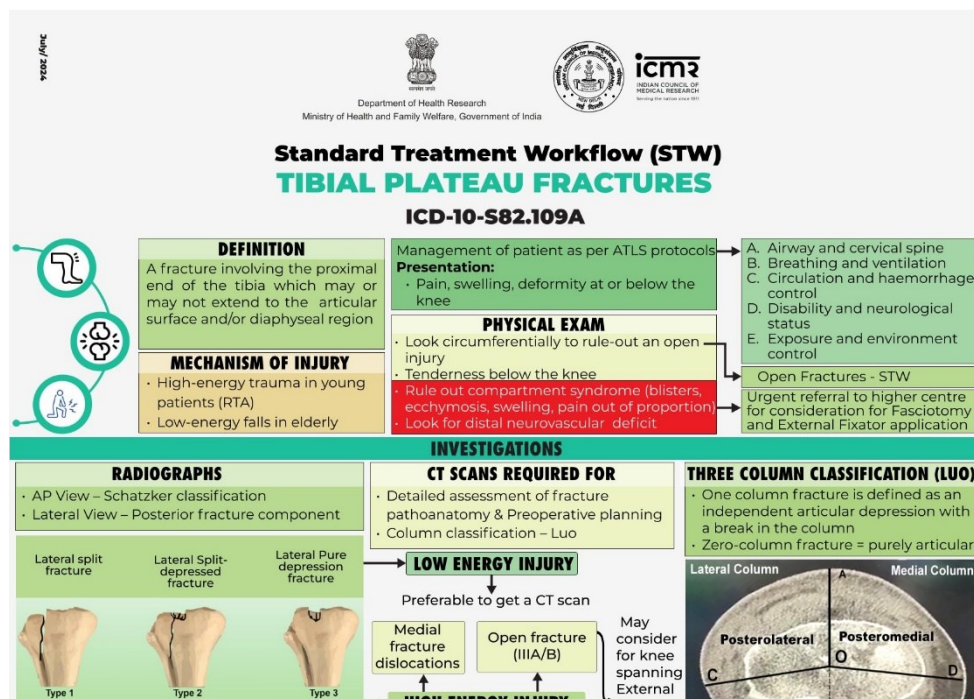
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Standard Treatment Workflow (STW) TIBIAL PLATEAU FRACTURES

ICD-10-S82.109A

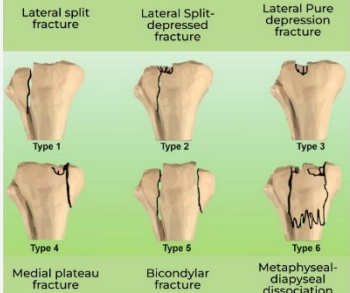


DEFINITION	Management of patient as per ATLS protocols	A. Airway and cervical spine B. Breathing and ventilation C. Circulation and haemorrhage control D. Disability and neurological status E. Exposure and environment control
A fracture involving the proximal end of the tibia which may or may not extend to the articular surface and/or diaphyseal region	Presentation: • Pain, swelling, deformity at or below the knee	
MECHANISM OF INJURY	PHYSICAL EXAM	
• High-energy trauma in young patients (RTA) • Low-energy falls in elderly	• Look circumferentially to rule-out an open injury • Tenderness below the knee • Rule out compartment syndrome (blisters, ecchymosis, swelling, pain out of proportion) • Look for distal neurovascular deficit	Open Fractures - STW Urgent referral to higher centre for consideration for Fasciotomy and External Fixator application

INVESTIGATIONS

RADIOGRAPHS

- AP View – Schatzker classification
- Lateral View – Posterior fracture component



CT SCANS REQUIRED FOR

- Detailed assessment of fracture pathoanatomy & Preoperative planning
- Column classification – Luo

THREE COLUMN CLASSIFICATION (LUO)

- One column fracture is defined as an independent articular depression with a break in the column
- Zero-column fracture = purely articular

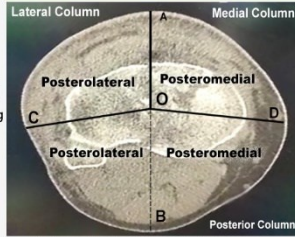


Plate application is based on the column concept. Attempt to reduce and fix each column individually

MANAGEMENT

GOALS OF TREATMENT

Restoration of joint stability

- Anatomical reduction of the articular surface
- Restoration of the mechanical axis of the lower limb

IMPLANT OPTIONS

Anatomical locking plates

- Buttressing against shear forces or Neutralizing rotational forces
- **Additionally** – Rim plates/fragment specific small plates/bone graft substitutes may be used on case to case basis

ATLS Management

X-Ray if possible
Limb elevation/ice packs/splintage
Analgesics

<p>At secondary centre</p> <ul style="list-style-type: none"> • Active bleed • Suspected compartment syndrome • Open fracture • Simple fracture <p>↓ Refer to secondary centre</p> <ul style="list-style-type: none"> • Stop the bleed • Refer- STW for open fracture • Fasciotomy if warranted for impending compartment syndrome • External fixator application <p>↓</p> <p>Open reduction internal fixation for simple fractures</p> <ul style="list-style-type: none"> • If final fixation not possible • Complex fracture dislocation • Vascular repair warranted • Multi-system injury <p>↓</p> <p>High Dependency Unit/Intensive Care Unit management for multi-system injury</p> <ul style="list-style-type: none"> • External Fixator • Fasciotomy if required • Vascular repair <p>Final fixation once swelling subsides/ blisters resolve/patient physiologically fit</p>	<p>At tertiary centre</p> <ul style="list-style-type: none"> • Vascular injury • Complex Fracture dislocation • Multi-system injury <p>Refer to tertiary centre</p>
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Tibial Plateau Fracture

X-Ray

Assess need for external fixator-Skin condition/swelling/blisters/compartment syndrome

Open reduction internal fixation should be performed only after appearance of "wrinkle sign"

<p>Schatzker 1 to 3</p> <p>Anterolateral approach</p> <p>Articular surface reconstruction by elevating depression using bone punch via lateral fracture split/medial window (Type 2 and 3 fractures)</p> <p>Placement of raft screws and/or plate</p>	<p>Schatzker 4</p> <p>Medial or posteromedial approach based on column involved</p> <p>Fracture reduction</p> <p>Fixation with Antiglide plate</p>	<p>Schatzker 5 & 6</p> <p>Based on the column concept-approach to each column must be made and all columns to be fixed</p> <p>First fix one fragment anatomically (usually posteromedial)</p> <p>Elevate the articular depression if present</p> <p>Fix each fragment with anatomical locking plates</p>
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ABBREVIATIONS

ATLS: Advanced Trauma Life Support **CT:** Computed Tomography **RTA:** Road Traffic Accident

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LOOK FOR RED FLAGS AND ACT TIMELY

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of ICMR for more information: (icmr.gov.in) for more information. ©Indian Council of Medical Research, Ministry of Health & Family Welfare, Government of India.